pyrimidine nucleotides, the receptor presents a functional response to lower concentrations of pyrimidine nucleotides than to purine nucleotides or an increased functional response to similar concentrations of pyrimidine nucleotides than to purine nucleotides.

Please add the following claims:

91. The receptor of Claim 70 wherein said receptor has a ten-fold to one hundred-fold increased functional response to UTP over UDP.

92. The nucleic acid molecule encoding a receptor of Claim 74 wherein said receptor has a ten-fold to one hundred-fold increased response to UTP over UDP.

IN THE ABSTRACT:

Please insert the attached Abstract at page 41.

REMARKS

Applicants acknowledge receipt of the Office Action on April 5, 2000, (Paper No. 10). An abstract of the disclosure on a separate sheet has been provided (see page 41) as required under 37 C.F.R. 1.72(b). The Title of the Invention has been amended to be more descriptive. The claims have been amended to more clearly recite the claimed invention. Claims 91 and 92 have been added. Support for the language "at least a two-fold preference" in amended Claims 70, 80, and 84 can be found on page 3, lines 7 and 8. Support for added claims 91 and 92 can be found in the Specification as filed page 22 line 33 through page 23 line 15. Support for the definition of "preference" can be found in the Specification page 2, line 24 through page 3, line 3.

Restriction Requirement

In response to the Restriction Requirement, Applicants have elected Group I, Claims 70-80, 84, and 89. However, Applicants submit that the examination of all of the pending claims would not place a burden on the examiner, because they contain overlapping subject matter and particularly, in light of the complete search which was made during the international phase of PCT prosecution.

Rejection under 35 U.S.C. §112, first paragraph

The Examiner has rejected Claims 70-79, 84, and 89 under 35 U.S.C. §112, first paragraph because the Examiner believes that the specification is not enabling for an isolated receptor variant having at least 60% homology with SEQ ID NO:2. However, the receptor of Claim 70 and its nucleic acid of Claim 74 are specified by their activity, i.e. that of: "having at least a two fold preference over pyrimidines than purines". Applicants believe that one of skill in the art would be able to identify variants which still possess this ability. Such variants could comprise one or more amino acid changes or differences in the amino acid sequence of the protein, but also deletion of a

larger portion of said receptor that is not necessary for the activity of the complete polypeptide. Such modifications cover also other animal variants of the human receptor according to the invention. Variants of this type which still have the claimed activity would require little experimentation by one of skill in the art to produce and test.

Claims 75 and 80 have been rejected under 35 U.S.C. §112, first paragraph. Claim 75 has been amended to remove reference to genomic DNA so as to obviate the rejection thereof. Claim 80 has been amended to idenitfy the probe as an "antisense" probe that has at least 60% homology to SEQ ID NO:1 Therefore, the nucleic acid probe is defined by a sequence. In light of the above arguments and amendments, Applicants respectfully request cancellation of the rejection under 35 U.S.C. §112, first paragraph.

Rejection under 35 U.S.C. §112, second paragraph

The Examiner has rejected Claim 80 under 35 U.S.C. § 112, second paragraph, because the Examiner believes the terms "specifically hybridize", "the nucleic acid molecule of Claim 73", and the term "unique" are indistinct. Applicant has amended Claim 80 to read "at least 60% homology to SEQ ID NO:1", "the nucleic acid molecule of Claim 74", and Applicant has removed the term "unique".

The Examiner has rejected Claim 80 under 35 U.S.C. § 112, second paragraph, because the Examiner believes the term "included" renders the claim indefinite. However, amended Claim 80 does not include this term.

The Examiner has rejected Claims 70, 80, and 84 under 35 U.S.C. § 112, second paragraph, because the Examiner believes the term "preference" is a relative term not defined by the claim. However, amended claims 70, 80 and 84 now recite "wherein in the presence of pyrimidine nucleotides, the receptor presents a functional response to lower concentrations of pyrimidine nucleotides than to purine nucleotides as well as an increased response to similar concentrations of pyrimidine nucleotides than to purine nucleotides". Claims 80 and 84 have been amended accordingly. Therefore, the term preference has been more clearly defined. Support for the added language can be found in the Specification page 2, line 24 through page 3, line 3 and pages 21-24 in which the function of the receptor is defined in experiments with different concentrations of specific nucleotides.

Therefore, Applicants respectfully request removal of the rejection under 35 U.S.C. §112, second paragraph.

Rejection under 35 U.S.C. §102(b)

The Examiner has rejected Claim 80 under 35 U.S.C. §102(b) as being anticipated by Parr et al. (1994). More specifically, the Examiner believes that Parr et al. discloses a polynucleotide sequence (SEQ ID NO:1) of more than 15 nucleotides capable of hybridizing to SEQ ID NO:1 and, thus, anticipates the present invention.

However, amended Claim 80 recites "An antisense probe at least having a sequence fully complementary to an isolated nucleic acid molecule encoding a receptor which has at least a two-fold preference for pyrimidine nucleotides over purine nucleotides, wherein said receptor has an amino acid sequence having more than 60% homology with the DNA sequence shown in SEQ ID NO:1". Therefore, the claim now recites specific hybridization conditions and that the probe be directed to a protein having a specific function. The Parr et al. Sequence, the P2U receptor, shows identity at 27 nucleotides, however, as shown in the Parr et al. PNAS reference, on page 3276, second column, lines 3 and 4, ATP and UTP (a purine and a pyrimidine) were equipotent for the P2U receptor (see Parr, et al. PNAS V.91, pp. 3275-3279). Therefore, the P2U receptor does not show the same functionality as the receptor of the invention and the probe corresponding to the P2U receptor and the probe to the P2U receptor is not directed to the protein with the specified function. Applicants respectfully request withdrawal of the rejection under 35 U.S.C. §102(b).

Conclusion

Should there be any questions relating to the above-captioned patent application, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number appearing below.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 5 Sept. 2000

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